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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,986	03/25/2004	Roger L. Schultz	HES 2003-IP-012204U1	7762
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EXAMINER				
SCHNEIDER, CRAIG M				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/808,986

Applicant(s)

SCHULTZ ET AL.

Examiner

CRAIG M. SCHNEIDER

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-102 is/are pending in the application.
- 4a) Of the above claim(s) 13-17, 33, 34, 46-52, 61-86 and 89-102 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 18, 19, 24, 35-45, 53-56, 87 and 88 is/are rejected.
- 7) ☒ Claim(s) 20-23, 25-32 and 57-59 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-12, 18, 19, 35-45, 53, 54, 87, and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer (Re. 33,448) in view of Warren (3,158,166).

Bauer discloses an apparatus (56 and 57) as seen in Figure 8 for creating a pulsating fluid flow comprising an inlet (far left side of the figure) into which fluid flows, a chamber (portion between the inlet and 58 and 59) having an upstream end and a downstream end, wherein the chamber is defined by a pair of outwardly-projecting sidewalls and wherein the inlet is disposed at the upstream end of the chamber, at least two feedback passages (passageways extending from 58 and 59 back to the inlet) having opposed entrances at the downstream end of the chamber and opposed exits at the upstream end of the chamber near where the chamber joins the inlet, and a feedback cavity (area between the exit on the far right of figure 8 and including 58 and 59) disposed at the downstream end of the chamber (col. 8, line 6 to col. 10, line 22). Bauer fails to disclose at least one feedback outlet leaving each of the feedback passages and at least one exit flowline leaving the at least one feedback outlet, wherein the at least one exit flowline has an exit port, wherein a pulsating fluid flow is generated through the exit port. Warren discloses at least one feedback outlet (where 53 and 56 leave 51 and 54) leaving each of the feedback passages as seen in Figure 4 and at least one exit flowline (53 and 56) leaving the at least one feedback outlet, wherein the

at least one exit flowline has an exit port, wherein a pulsating fluid flow is generated through the exit port (col. 9, line 52 to col. 10, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the exit flow lines off of the feedback passages of Warren onto the fluidic oscillator of Bauer, to control the pulsating fluid flow (col. 9, line 72 to col. 10, line 1).

Regarding claims 4, 6, 7, 9, 10, 37, 39, 40, 42, and 43; wherein the exit port of the at least one exit flowline is disposed near the downstream end of the chamber.

It would have been an obvious matter of design choice to one of having ordinary skill in the art at the time the invention was made to move the exit flowline to another location along the feedback passage and further in different orientations, more specifically parallel to the inlet and towards the downstream end of the chamber. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with the exit flowline anywhere in the feedback passage and in any orientation because the location of the exit flowline would not effect the performance of the device. Therefore, it would have been an obvious matter of design choice to modify Bauer/Warren to obtain the invention as specified in claims 4, 6, 7, 9, 10.

Regarding claim s 18 and 53, the apparatus further comprising at least one fluid outlet (the exit located at the far right of figure 8) leaving the feedback cavity.

3. Claims 24, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer (Re. 33,448)/Warren as applied to claim 1 and 35 above, and further in view of Bauer (4,157,161).

Bauer (Re. 33,448) and Warren in combination disclose all the features of the claimed invention except that a second fluidic oscillator is used. Bauer (4,157,161) discloses using a second fluidic oscillator (col. 3, lines 10-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a second oscillator as taught by Bauer('161) with the fluidic oscillator of Bauer(Re. 33,4480)/Warren, to cover more area (col. 3, lines 10-18).

Response to Arguments

4. Applicant's arguments filed 12/12/07 have been fully considered but they are not persuasive. The applicant is arguing that the exit flow line of Warren would not create a pulsating fluid flow. The applicant further argues that the flow out of the exit flow lines 53 and 56 would not pulsate since the exit flow lines bleed the fluid off of chambers 51 and 54 in order to delay the switching of the fluid that enters the inlet (43) of the device from one outlet (45 and 47) to the other. The examiner respectfully disagrees that the exit flow lines of Warren would not create a pulsating fluid flow. The exit flow lines 53 and 56 of Warren do not need to be fully opened and therefore the chambers would still be filling, though slower. The feedback channels/chambers (48/51 and 49/54) would still provide a switching effect between the exits 45 and 47 of the device even when the exit flow lines are partially opened. Therefore upon each change over from exits 45 and 47 the exit flow lines 53 and 56 would have a pulsating fluid flow since the flow during each switch would stop and restart the flow through each feedback channel. This would in turn generate a pulsating fluid flow.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:30 -5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Huson can be reached on (571) 272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. S./
Examiner, Art Unit 3753
February 22, 2008

/John Rivell/
Primary Examiner, Art Unit 3753